

REMARKS

CLAIM REJECTIONS 35 USC 102(e)

The Examiner has rejected claims 1-13, 15-19, 21 and 23-29 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 6,388,789 to Bernstein (hereinafter Bernstein). In making the rejection, the Examiner states that the claimed invention reads on Bernstein.

The Applicants respectfully traverse the rejection. A cursory review of Bernstein reveals that the word sensor appears nowhere in the description or claims. In addition, Bernstein describes element 720a, which the Examiner says is a sensor, as a switching element (see, e.g., col. 15, line 3). Furthermore, the passage cited by the Examiner purporting to show measuring a change in a property of the sensor as its position changes (col. 15, lines 5-20) instead refers to addressing the optical element by application of a current to a coil to produce rotational movement of the switching element by interaction with a magnetic influence, such as an external magnetic field. Consequently, Bernstein teaches magnetic actuation and not a magnetic sensor as recited in claims 1 and 26.

Furthermore, dependent claims 2-25 and 27-29 depend, either directly or indirectly, from claims 1 and 26 and recite additional features therefor. As such, and for the same reasons set forth above with respect to claims 1 and 26, the Applicants submit that these dependent claims define an invention suitable for patent protection.

In addition, with respect to claims 2-8, the Applicant submits that, as set forth above, Bernstein does not teach a sensor of any kind disposed on a movable portion of a micro machined optical element. Specifically, Bernstein does not teach a sensor that senses a magnetic field used to actuate the micro machined optical element as set forth in claim 2. Furthermore, Bernstein does not teach or suggest placing a sensor on a moveable portion of a micro machined optical element as recited in claim 3, on a fixed portion as in claims 5 or 6, on a base as in claim 7 or on a top chip as in claim 8. The item 3 that the Examiner identifies as a top chip Bernstein identifies as a second rotational member. For comparison, the Applicant respectfully directs the Examiner's attention to the top chip 525 in FIG. 5A.

With respect to claim 9, Bernstein teaches switching elements 202, not sensors, coupled together in the circuits shown in FIGs. 7A-7B (see col. 13, lines 42-65).

Furthermore, with respect to claims 9, 10, 16 and 17, the Applicants submit that the structure shown in FIG. 3B includes neither a bridge circuit nor a Wheatstone bridge circuit since nowhere does Bernstein describe, teach, or suggest using a bridge circuit to measure a property of any sensor. Instead, Bernstein describes disposing coil pairs 6, 7, 5 lead lines 6A, 7A and/or contacts 6B, 7B adjacent underlying member or flexure structures with a bridge technique using a bridge layer 9 to support these elements off an underlying structure. Hence, Bernstein is referring to a structural bridge as opposed to an electrical bridge circuit. With respect to claims 4 and 13, Bernstein is completely devoid of any teaching or suggestion any of the types of sensors listed in these claims. Instead, 10 Bernstein teaches that the coil pair 7 of FIG. 5 generates a pair of magnetic moments. Thus coil pair 7 is an actuator, not a sensor. Furthermore, the Photonics Dictionary (<http://www.photonics.com/dictionary/lookup/XQ/ASP/url.lookup/entrynum.3125/letter.m/pu./QX/lookup.htm>) defines magneto-optics to mean “[t]he study of the effects of a magnetic field on specific properties of light, such as polarization.” The Applicant 15 submits that Bernstein is devoid of any teaching or suggestion of a sensor in which a magnetic field has an effect on a specific property of light.

Finally, the Applicants submit that Bernstein does not teach temperature measurement, compensation, and regulation as set forth in claims 23-25 and 27-29. Instead, Bernstein teaches depositing a reflective layer on a thermal stress compensation layer. Bernstein 20 does not say whether the thermal stress compensation layer measures temperature as recited in 23-25 and 27-29. Nor does Bernstein teach or suggest determining a relationship between the property of the magnetic sensor and the measured temperature as set forth in claims 24 and 28 or maintaining a temperature in a desired range as set forth in claims 25 and 29. Instead, it appears from the context of Bernstein’s description 25 that the purpose of the thermal stress compensation layer is to provide passive relief from thermal stress resulting from different thermal expansion coefficients of the reflective layer 355 and the underlying rotational element 3.

As such, for at least these additional reasons, dependent claims 2-10, 12-14, 16, 17, 19-25 and 27-29 define an invention suitable for patent protection.

ALLOWABLE SUBJECT MATTER

The Examiner has indicated that claims 14, 20 and 22 would be allowable if rewritten in independent form. The Applicant appreciates that the Examiner has indicated allowable subject matter in claims 14, 20 and 22. However, for the reasons stated above, the
5 Applicant believes that the claims are allowable as they presently stand in the application.

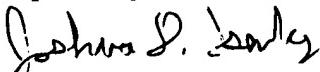
OTHER REFERENCES CITED

The Examiner has made U.S. Patent 6,259,835 to Jing. (hereinafter Jing) of record, but has not relied upon it. The Applicant submits that Jing is not pertinent in that it teaches neither sensors nor changes in sensor properties with position of a MEMS moveable element.
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CONCLUSION

In view of the above remarks, the Applicant submits that all pending claims are allowable over the prior art of record. Therefore, the Applicants respectfully request that the Examiner reconsider the application and issue a Notice of Allowance in the next Office
15 Action.

Respectfully submitted,



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